

REMARKS

Claims 1–14, 18, 20, 22–26, 28, 30–35 and 39–42 are pending in this application. By this Amendment, claims 13, 26, 28 and 39 are amended. Support for the amendments can be found, for example, in paragraphs [0208], [0225]–[0228], [0258]–[0262], [0284]–[0285] and [0320] of the original specification. No new matter is added. Applicants respectfully request reconsideration and prompt allowance for at least the following remarks.

Applicants appreciate the courtesies shown to Applicants' representatives by Examiner Khan in the October 30 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action rejects claims 1–14, 18, 25, 26, 28, 30–33, 35 and 39–42 under 35 U.S.C. §103(a) over U.S. Patent No. 6,107,910 (Nysen) in view of U.S. Patent No. 6,362,737 (Rodgers) and U.S. Patent No. 5,940,006 (MacLellan). Applicants respectfully traverse the rejection.

Regarding claims 1 and 12, Applicants assert that the references do not disclose or suggest an endpoint device including "a distance detecting portion operable to detect a distance between said interrogator and said endpoint device."

Rather, Applicants maintain that Nysen discloses a system that utilizes the drop in transmitted signal strength of a tag to prevent the antenna 371 from receiving multiple signals from multiple tags. Nysen discloses using the limited signal strength of the tag in the vehicle in Lane 2 to prevent the antenna 371 from detecting the tag, rather than the antenna detecting the signal from the tag and the decoder/demodulator limiting further analysis of the information of the tag based on detected distance of the tag. Nysen explicitly discloses "the tag 372 on the automobile in Lane 2 will never be closer than about 25 feet from the antenna [371]. Accordingly, the signal sent back from that tag will be significantly smaller than the signal from any vehicle in Lane 1 Therefore, the signal from the adjacent vehicle in

Lane 2 will be well below the sensitivity level of the decoder/demodulator in apparatus [sic] of this invention" (Nysen at col. 35, lines 25–34). Because Nysen merely discloses using the drop in signal strength to limit detected tags, Nysen does not disclose the recited detecting distance.

The Office Action alleges "[i]f the signal strength is used to eliminate the tags that are out of range and creating noise than the system is detecting the distance between the receiver and the tags" (Office Action at page 2). The Office Action's interpretation of Nysen is misguided.

The Friis equation relates the transmission power of a signal to the distance of the transmission:

$$P_{RX} = P_{TX} \left(\frac{\lambda}{4\pi d} \right)^2$$

where P_{RX} and P_{TX} are the powers of the received and transmitted signal, respectively, λ is the wave length of the signal and d is the distance between the transmitter and the receiver.

Nysen does not disclose that the antenna 371 or decoder/demodulator knows the power of the transmitted signal from the tags of the vehicles traveling in Lanes 1 and 2. Therefore, the antenna 371 and decoder/demodulator in Nysen cannot determine the distance between the transmitter and the receiver because the equation is unsolvable, i.e., P_{TX} is unknown.

As discussed above, the distance between the antenna 371 and tags in Nysen is only used as a pre-defined, controlled distance that eliminates tags that are out of range. As illustrated in Fig. 38, the receiver is positioned a controlled distance from Lane 2 so the signals from tags in cars traveling in Lane 2 are more than 25 feet from the receiver and, therefore, are not able reach the receiver designated for Lane 1.

Based on the above discussion, the references fail to teach or suggest a "distance detecting portion operable to detect a distance between said interrogator and said endpoint device," as recited in claims 1 and 12. Therefore, Applicants respectfully request withdrawal

of the rejection to claims 1 and 12. Applicants also assert that claims 2–11 are patentable, at least in view of the patentability of claim 1, from which the claims variously depend, as well as for the additional features they recite. Therefore, Applicants respectfully request withdrawal of the rejection to claims 1–12.

Regarding claim 28, the references do not disclose or suggest "a power-source-information detecting portion operable to detect an operating state of said battery cell" where the "frequency-utilization-ratio setting portion is operable on the basis of the operating state of said battery cell detected by said power-source-information detecting portion, to set the distribution of the frequency utilization ratio of the subcarrier signal" and "the operating state of the battery cell being at least able to power the endpoint device."

As conceded by the Office Action, Nysen does not disclose that the transponder includes a device that is "operable to detect an operating state of said battery cell" and that the "frequency-utilization-ratio setting portion is operable on the basis of the operating state of said battery cell detected by said power-source-information detecting portion, to set the distribution of the frequency utilization ratio of the subcarrier signal."

Further, the disclosure of Rodgers at col. 11, line 66, through col. 13, line 23, discloses how a monitor selects frequency bands for communicating with transceivers but does not disclose the features recited in claim 28 because it does not disclose "frequency-utilization-ratio setting portion is operable on the basis of the operating state of said battery cell detected by said power-source-information detecting portion, to set the distribution of the frequency utilization ratio of the subcarrier signal" where "the operating state of the battery cell being at least able to power the endpoint device." The Examiner asserted during the October 30 personal interview that a device powered by a battery that broadcasts at a specific frequency is unable to broadcast if the battery has insufficient charge. Thus, the Examiner alleges the state of the battery with sufficient charge to power the device and the state of the

battery with insufficient charge to power the device discloses the above recited features. However, the state of a battery either able or unable to power the device does not disclose "the operating state of the battery cell being at least able to power the endpoint device," as recited in claim 28, because a battery with insufficient charge does not satisfy the requirement of "at least able to power the device." Accordingly, claim 28 is patentable over the cited references. As claim 39 recites "the supply voltage of the battery cell being at least able to power the endpoint device," claim 39 is also patentable based on reasons paralleling the above discussion.

Applicants respectfully assert that claims 30–33, 35 and 40–42 are also patentable, at least in view of the patentability of claims 28 and 39, from which they variously depend, as well as for the additional features they recite. Therefore, Applicants respectfully request withdrawal of the rejection to claims 30–33, 35 and 40–42.

Regarding claims 13 and 26, the references do not disclose or suggest a communication-condition detecting portion "operable to detect a condition of communication of the interrogator with said at least one endpoint device on the basis of at least one of a collision rate among the reflected signals transmitted from a plurality of endpoint devices, the number of occurrences of collision among the reflected signals transmitted from said plurality of endpoint devices per unit time, and an amount of error data contained in said reflected signal transmitted, from each endpoint device, the condition of communication being at least able to permit communication between the interrogator and the at least one endpoint device."

The Office Action alleges that col. 18, lines 48–52, of Rodgers discloses claim 13. However, this allegation is incorrect as Rodgers at col. 18, lines 47–49 states, "[s]ubsequent communication employing the individual identification may then proceed without collision, interference, or ambiguity in system operation." While Rodgers discloses the term "collision," it does not disclose the condition of communication detected on the basis of "at

least . . . the number of occurrences of collision among the reflected signals transmitted from said plurality of endpoint devices per unit time," as recited in claim 13. Nor do the tables in Rodgers disclose the recited language of claim 13.

Further, it is insufficient that the applied references may be argued to disclose determining the frequency of a sub carrier signal within a frequency range. The applied references must teach or suggest "an available-band determining portion operable to determine an available frequency band of a subcarrier signal available for said at least one endpoint device on the basis of said condition of communication detected by said communication-condition detecting portion" where the communication-condition detecting portion "is operable to detect said condition of communication on the basis of at least one of a collision rate among the reflected signals transmitted from the at least one endpoint device, the number of occurrences of collision among the reflected signals transmitted from the at least one endpoint device per unit time, and an amount of error data contained in said reflected signal transmitted from each of the at least endpoint device" and "the condition of communication being at least able to permit communication between the interrogator and the at least one endpoint device," and as recited in claims 13 and 26.

Additionally, during the personal interview, the Examiner suggested that devices at least able to change frequencies if unable to communicate based on a large rate of collisions and/or large number of errors disclose the recited feature of claims 13 and 26 because if the devices are unable to communicate, they scan to different broadcast frequencies. However, being unable communicate and therefore changing frequencies does not disclose "the condition of communication being at least able to permit communication between the interrogator and the at least one endpoint device," as recited in claims 13 and 26.

Based on the foregoing, the cited references fail to teach or suggest claims 13 and 26. Applicants respectfully request withdrawal of the rejection to claims 13 and 26. Applicants

also assert that claims 14, 18 and 25 are patentable, at least in view of the patentability of claim 13, from which the variously depend, as well as for the additional features they recite. Therefore, Applicants respectfully request withdrawal of the rejection to claims 14, 18 and 25.

The Office Action rejects claim 34 under 35 U.S.C. §103(a) as unpatentable over Nysen in view of Rodgers and MacLellan in further view of U.S. Patent Application Publication No. 2001/0020897 (Takatori). Applicants respectfully traverse the rejection.

This rejection is premised upon the presumption that Nysen, Rodgers and MacLellan disclose or suggest all of the features of claim 28. Because, as discussed above, Nysen, Rodgers and MacLellan do not disclose or suggest all of the features of claim 28, the rejection is improper. Therefore, Applicants respectfully request withdrawal of the rejection.

The Office Action rejects claims 20 and 22–24 under 35 U.S.C. §103(a) as unpatentable over Nysen in view of Rodgers and MacLellan in further view of U.S. Patent No. 6,792,276 (Butovitsch). Applicants respectfully traverse the rejection.

This rejection is premised upon the presumption that Nysen, Rodgers and MacLellan disclose or suggest all of the features of claim 13. Because, as discussed above, Nysen, Rodgers and MacLellan do not disclose or suggest all of the features of claim 13, the rejection is improper. Therefore, Applicants respectfully request withdrawal of the rejection to claims 20 and 22–24.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
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